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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/704,898	11/02/2000	Firas Abi-Nassif	12144-004001	4528
26161	7590	04/19/2005	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			HO, CHUONG T	
			ART UNIT	PAPER NUMBER
			2664	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/704,898

Applicant(s)

ABI-NASSIF ET AL.

Examiner

CHUONG T HO

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The amendment filed 11/10/04 have been entered and made of record.

Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

2. Claims 1-27 are pending.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2-4, 6-8, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peisa et al. (U.S. Patent No. 6,850,540 B1) in view of Patel et al. (U.S. Patent No. 6,865,185 B1).

In the claims 1, 26, Peisa et al. discloses scheduling data flows in accordance with the present invention is illustrated generally at 800... This selection may be performed once for each TTI (transmission time interval). Initially, several parameters are obtained for each logical channel. The QoS Class each logical channel may be obtained from the corresponding RAB (Radio Access Bearer) parameter (QoS Class, Guaranteed Rate..)(see figure 8, col. 18, lines 30-38); comprising:

- Controlling the order in which packets are transmitted based on the transmission rate (Guaranteed Rate) and the service class (QoS Class) of the packets (see figure 8, col. 18, lines 30-38) (see col. 3, lines 15-25) ;

- Transmitting packets corresponding to the received packets to recipients (UE) (see figure 2, col. 4, lines 20-45).

However, Peisa et al. is silent to disclosing associating each of the received data packets with one of a set of different service classes.

Patel et al. Discloses inserting labels or tags in front of each data packet indicating the FEC which is based on the commonability of flow characteristics. Such labels or tags enable the enforcement of QoS treatments (see col. 3, lines 62-65); The system for queuing traffic in a wireless network includes receiving a stream of packets for transmission in the wireless network..... Each packet is queued in an assigned virtual group for transmission in the wireless network (see abstract); comprising:

- Receiving data packets at a communication node; associating each of the received data packets with one of a set of different service classes; transmitting packets corresponding to the received packets to recipients (see col. 3, lines 62-65, abstract).

Both Peisa and Patel disclose the different service class of the packets. Patel recognizes associating each of the received data packets with one of a set of different service classes. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Peisa with the teaching of Patel to associate each of the received data packets with one of a set of different service classes in order to control transmitting packet to the recipient based on QoS, transmission rate. Therefore, the combined system would have been reduced the delay time in the processing packets.

4. In the claim 2, Patel et al. discloses the transmitted packets comprise physical layer packets (see col. 2, lines 5-45).
5. In the claim 3, Peisa discloses the rates of transmission are controlled based on a time-division multiplexing algorithm (see figure 8, col. 18, lines 30-38) (see col. 3, lines 15-25).
6. In the claim 4, Peisa discloses the node comprises a radio node of communication protocol (see figure 2, col. 4, lines 20-45).
7. In the claim 6, Patel et al. discloses the different classes of service conform to a differentiated services architecture (see col. 3, lines 62-65, abstract).
8. In the claim 7, Patel et al. discloses the differentiated service architecture comprises DiffServ (see col. 3, lines 62-65, abstract).
9. In the claim 8, Patel et al. discloses the service classes comprises at least one expedited forwarding class and at least one assured forward class (see col. 10, lines 12-18).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5, 9, 10, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Peisa – Patel) in view of Tiedemann, Jr. et al. (U.S. Patent No. 6,567,420 B1).

In the claim 5, the combined system (Peisa - Patel) discloses the limitations of claim 1 above.

However, the combined system (Peisa - Patel) is silent to disclosing high data rate (HDR).

Tiedemann, Jr. et al. discloses high data rate (see col. 4, lines 65-67, col. 7, lines 1-5)

Both, Peisa, Patel, and Tiedeman, Jr. disclose the class of service of packets. Tiedman, Jr. recognizes high data rate. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Peisa – Patel) with the teaching of Tiedmann to provide high data rate in order to dedicated higher data rate, the class of services request by the user (access terminal). Therefore, the combined system would have been enable the scheduler to determine the order to transmit data packets to recipient based on transmission rate and class of service of data packet.

11. In the claim 9, Tiedemann, Jr. et al. discloses receiving a user-defined minimum average forwarding percentage rate for at least one of the different service classes (see col. 7, lines 1-5).

12. In the claim 10, Tiedemann, Jr. et al. discloses the percentage comprises a percentage of the total bandwidth of a link on which the packets are transmitted (see col. 2, lines 57-67).

13. In the claim 11, Tiedemann, Jr. et al. discloses the transmission rates are sent by the recipients (see col. 7, lines 1-5)

14. In the claim 12, Tiedemann, Jr. et al. discloses the transmission rates are sent by the recipients using a feedback channel to the node (see col. 8, lines 1-8).

15. Claims 13, 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Peisa – Patel) in view of Jalali. et al. (Data throughput of CDMA-HDR).

In the claim 13, the combined system (Peisa - Patel) discloses the limitations of claim 1 above.

However, the combined system (Peisa - Patel) is silent to disclosing an order of transmission of the packets is controlled by two-level scheduling including a class level in which ordering is determined among the classes of service and a recipient level in which ordering is determined among the recipients associated with each class

Jalali et al. discloses an order of transmission of the packets is controlled by two-level scheduling including a class level in which ordering is determined among the classes of service and a recipient level in which ordering is determined among the recipients associated with each class (see page. 1856, col. 1, lines 34-50).

Both, Peisa, Patel, and Jalali et al. disclose the class of service of packets. Jalali recognizes an order of transmission of the packets is controlled by two-level scheduling including a class level in which ordering is determined among the classes of service and a recipient level in which ordering is determined among the recipients associated with each class (see page. 1856, col. 1, lines 34-50). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Peisa – Patel) with the teaching of Jalali to provide two-level

scheduling including a class level in which ordering is determined among the classes of service and a recipient level in which ordering is determined among the recipients associated with each class in order to be able the scheduler to determine the order to transmit data packets to recipient based on transmission rate and class of service of data packet.

16. In the claim 14, Jalali et al. discloses the recipient level uses the Qualcomm algorithm (see page 1856, col. 1, lines 34-50).

17. In the claim 15, Jalali et al. discloses the class level scheduling is based on at least one of the following for each of the classes: a configured minimum average forwarding rate percentage for the class, an actual forwarding rate percentage recently received by the class, and a channel quality of the recipients that belong to the class and are selected to receive service by the recipient level scheduling (see page 1856, col. 2, lines 34-50).

18. In the claim 16, Jalali et al. discloses the class level scheduling is done over a predetermined length window of time slots (see page 1856, col. 1, lines 34-50).

19. In the claim 17, Jalali et al. discloses the class level scheduling includes a weighted round robin scheduling algorithm in which the weights corresponds to channel quality of the recipient belonging to the respective classes (see page 1856, col. 2, lines 34-50).

20. In the claim 18, Jalali et al. discloses the class level scheduling is based at least in part on a planned selection at the recipient level within each class (see page 1856, col. 1, lines 34-50).

21. In the claim 19, Jalali et al. discloses the class level scheduling is based on a metric scaled by different scaling factors for different service classes (see page 1856, col. 2, lines 34-50).

22. In the claim 20, Jalali et al. discloses the scaling factor for all service classes are adaptively adjust to meet the MAFRP for the service classes (see page 1856, col. 2, lines 34-50).

23. In the claim 21, Jalali et al. discloses the class level scheduling is based on a metric which is adaptively adjusted to meet the MAFRP for the service classes (see page 1856, col. 2, lines 34-50).

24. In the claim 22, Jalali et al. discloses the class level scheduling selects a class from among a subset of the classes (see page 1856, col. 1, lines 34-50).

25. In the claims 23, 25, Jalali et al. discloses the member of the subset of classes are determined by pre-assigned schedule times (see page 1856, col. 1, lines 34-50).

In the claim 24, Jalali et al. discloses the recipient level scheduling selects a recipient from among a subset of the recipients (see page 1856, col. 1, lines 34-50).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peisa et al. (U.S. Patent No. 6,850,540 B1) in view of Tiedemann, Jr. et al. (U.S. Patent No. 6,567,420 B1).

27. In the claim 27, Peisa et al. discloses scheduling data flows in accordance with the present invention is illustrated generally at 800... This selection may be performed once for each TTI (transmission time interval). Initially, several parameters are obtained for each logical channel. The QoS Class each logical channel may be obtained from the corresponding RAB (Radio Access Bearer) parameter (QoS Class, Guaranteed Rate..)(see figure 8, col. 18, lines 30-38); comprising:

- Scheduling packets for transmission among the different classes based on the received values (see figure 8, col. 18, lines 30-38) (see col. 3, lines 15-25) ;
- Transmitting packets corresponding to the received packets to recipients (UE) (see figure 2, col. 4, lines 20-45).

However, Peisa et al. is silent to disclosing receiving from network operator values representing minimum average forwarding rate percentage for each of more than one distinct class of service associated with transmission packets from a radio node of a network to recipients.

- Tiedemann, Jr. et al. discloses receiving from network operator (base station) (see col. 2, lines lines 19-28, the remote unit chose to transmit the data rate lower than the maximum rate in order to conserve remote unit power and spectral resources, see col. 3, lines 21-25, the access request message specifies the desired transmission data rate. In response, the base station may give

permission for the remote unit to transmit at the desired data rate, may give the remote unit permission to transmit a lower data rate) values representing minimum average forwarding rate percentage for each of more than one distinct class of service associated with transmission packets from a radio node (remote unit) of a network to recipients (see col. 2, lines 19-28, col. 3, lines 21-25, col. 7, lines 1-5, the determination of the desired data rate may take into consideration the amount of data queued for transmission, the available transmission power which can dedicated to higher data rates, the class service requested by the user).

Both Peisa and Tiedemann disclose the different service class of the packets. Tiedemann recognizes receiving from network operator values representing minimum average forwarding rate percentage for each of more than one distinct class of service associated with transmission packets from a radio node of a network to recipients. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Peisa with the teaching of Tiedemann to receive from network operator values representing minimum average forwarding rate percentage for each of more than one distinct class of service associated with transmission packets from a radio node of a network to recipients in order to control transmitting packet to the recipient based on QoS, transmission rate. Therefore, the combined system would have been reduced the delay time in the processing packets.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG T HO whose telephone number is (571) 272-3133. The examiner can normally be reached on 8:00 am to 4:00 pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

04/03/05



WELLINGTON CHIN  
SUPERVISORY PATENT EXAMINER